

IN THE UNITED STATES DISTRICT COURT  
FOR THE NORTHERN DISTRICT OF GEORGIA  
GAINESVILLE DIVISION

UNITED STATES OF AMERICA, )  
Plaintiff, )  
-vs- ) Indictment  
WILLIAM CHRISTOPHER GIBBS, ) No. 2:17-CR-005-RWS  
Defendant. )

Transcript of the Daubert Motion and Pretrial Conference  
Before the Honorable Richard W. Story,  
United States District Court Judge  
September 5, 2018  
Gainesville, Georgia

APPEARANCES OF COUNSEL:

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the Government: Ryan Karim Buchanan,  
Assistant United States Attorney

On behalf of  
the Defendant: Mildred Geckler Dunn, Esq.  
V. Natasha Perdew Silas, Esq.

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Atlanta, Georgia  
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1 (Wednesday, September 5, 2018, 10:05 a.m.; Gainesville,  
2 Georgia.)

3 THE COURTROOM DEPUTY: The Court now calls for a  
4 pretrial conference and hearing in Criminal Action  
5 2:17-CR-05, United States of America versus William  
6 Christopher Gibbs.

7 Counsel, please state your name for the record.

8 MR. BUCHANAN: Good morning, Your Honor, Ryan Buchanan  
9 on behalf of the United States. I'm joined at counsel table  
10 by FBI special agents Kim Spell-Fowler and Benni Jonsson.

11 THE COURT: Good morning.

12 MS. SILAS: Good morning, Judge. For Mr. Gibbs, I am  
13 Natasha Silas, and also co-counsel Millie Dunn is here at the  
14 table, along with Mr. Gibbs.

15 THE COURT: Good morning.

16 We are here on a couple of matters. The first is there  
17 was a request for a *Daubert* hearing concerning the expert  
18 that the government wishes to produce at the trial based upon  
19 some disclosures that have been made by the government to the  
20 defense concerning that expert's qualifications and opinions.

21 Let me, I think the way I'd like to proceed is,  
22 Mr. Buchanan, give you an opportunity to make a brief opening  
23 statement and then, Ms. Silas, if you want to respond to  
24 that, and then I'll hear the actual evidence just to help me  
25 to, I think, bring into focus just what's at issue here.

1 MS. SILAS: Okay, so are we jumping directly to the  
2 *Daubert* hearing? I do have at least one matter to bring up  
3 that would be more classified as a pretrial conference type  
4 matter.

5 THE COURT: Okay. What's that?

6 MS. SILAS: Okay. Judge, the government in its  
7 investigation of the case noted and provided the documents  
8 relating to a number of items that I think are irrelevant.

9 And so for Mr. Gibbs, he has a particular type of  
10 religion and that religion involves a Bible called a *White*  
11 *Man's Bible*. There were some Facebook postings that have  
12 sort of a version of a swastika but it's something kind of  
13 modified. There's also some things associated with his  
14 church that I think some people might call white supremacist  
15 and other type things.

16 I think they have nothing to do with the issues that the  
17 jury's going to need to determine in this case. I really  
18 think that that could end up being a bit of a sideshow.  
19 There's kind of like -- I don't even see any relevance at all  
20 in it. He's charged with possessing a substance that's  
21 supposed to be on a certain prohibited list, so there's not  
22 really a question of, you know, intent that would possibly  
23 bring those type of things in issue other than intent to  
24 possess a particular substance, and I think all of those type  
25 matters ought to be kept out.

1 I do think that it could bleed into, so, how did your  
2 investigation start, blah, blah, blah, blah, blah, we decided  
3 to look into this. But even though that might give the jury  
4 a fuller picture of the course of the investigation, if that  
5 is the case, and I hear some murmurings that maybe that's not  
6 the case, whatever the case is, we shouldn't be hearing about  
7 swastikas or white supremacy or any kind of religious views  
8 or that Mr. Gibbs considers religious in front of this jury.

9 THE COURT: Thank you. I think we will pass on that  
10 until we hear from the *Daubert* matter, only because I'm  
11 assuming you've got a witness here on the *Daubert* matter?

12 MR. BUCHANAN: I do, and he's from D.C.

13 THE COURT: All right, why don't we get that so we can  
14 get that taken care of and let him go on about his day and  
15 then we'll come back to this on the pretrial matters.

16 MS. SILAS: Okay. And the Court did receive our motion  
17 to dismiss, right? Because we feel it's dispositive.

18 THE COURT: Well, we'll take that up after the *Daubert*.

19 MS. SILAS: Okay, great.

20 THE COURT: Mr. Buchanan, let me hear from you, just a  
21 brief opening if you would in terms of your position. And  
22 we'll limit ourselves to the *Daubert* issue at this time.

23 MR. BUCHANAN: Absolutely, Your Honor.

24 Your Honor, this case, I don't know if the Court is  
25 aware of -- just a brief issue of the facts.

1           Back in February of 2017, Mr. Gibbs showed up at the  
2           hospital in Fannin County and reported to the hospital staff  
3           he believed he'd spilled ricin on himself. They inquired a  
4           little bit about what he had done, type of castor beans, sort  
5           of understood there was a potential hazardous material  
6           situation.

7           So he was treated by the hospital staff and the hospital  
8           staff alerted the local, the Fannin County HAZMAT, which  
9           Fannin County actually does not have a HAZMAT team so they  
10          came over from Cherokee County, I believe. So they processed  
11          the scene, they in turn called the FBI, and so then the FBI  
12          processed this scene.

13          During that processing they pulled and recovered several  
14          items. They sent those items to the FBI lab and four of  
15          those items tested positive for ricin.

16          Dr. Neel Barnaby from the -- I'm going to mess up the  
17          name of it -- the Scientific Response and Analysis Unit,  
18          SRAU, at the FBI lab in Quantico worked on these materials  
19          and he concluded that four of those things, two substances,  
20          two liquid substances tested positive for ricin and then two  
21          physical items, a grinder, and then an acetone bottle.

22          So we have proffered Mr. -- Dr. Barnaby as an expert in  
23          the detection of biological threat agents.

24          If Dr. Barnaby sounds familiar, he's testified before  
25          Your Honor before in a previous ricin case, I believe in 2014

1 or 2015, so the Court should be familiar. His testimony  
2 would be substantively the same as that previous testimony a  
3 few years ago. I believe that there may be one test that has  
4 been adapted or has changed, but in sum it will essentially  
5 be the same.

6 So we've offered him as the expert and we plan to call  
7 him this morning. That's our only expert witness in this  
8 matter.

9 THE COURT: Very well.

10 Ms. Silas?

11 MS. SILAS: And what's that, what was that middle word,  
12 biological what agent?

13 MR. BUCHANAN: Threat.

14 MS. SILAS: Threat agent.

15 Judge, we don't -- well, first of all, Ms. Dunn is going  
16 to handle the questioning.

17 THE COURT: Okay.

18 MS. DUNN: There are a couple of things I would like to  
19 point out, Your Honor.

20 THE COURT: Okay, come on up.

21 MS. DUNN: This sort of dovetails -- well, it directly  
22 dovetails with our motion to dismiss.

23 First, in order for the Court to make a finding that  
24 under *Daubert* this man should testify you have to find that  
25 it's relevant that ricin was possessed in the first place.

1 So from that standpoint we believe it's irrelevant and it's  
2 not a select agent as defined in 18 U.S.C. 175b(a). So  
3 that's number one.

4 Number two --

5 THE COURT: That part's of why I wanted to do this  
6 first, because I think, I read your motion to dismiss, and to  
7 suggest that I fully grasp where we are on that would be a  
8 gross overstatement and so that's why I'm hoping some expert  
9 testimony may help me to better understand the descriptors  
10 that are in the statute and so forth.

11 MS. DUNN: Well, that is really the most important point  
12 from our perspective at this point, I think, so I'm going to  
13 sit down and we can go ahead and get started and if I need to  
14 say anything later I will.

15 THE COURT: Very well, thank you.

16 All right, Mr. Buchanan, you may call your witness.

17 MR. BUCHANAN: Your Honor, the United States calls Dr.  
18 Neel G. Barnaby.

19 THE COURT: Dr. Barnaby, you can come around and come  
20 through.

21 MS. SILAS: We'd invoke the rule if there are any other  
22 witnesses. It seems like there might not be.

23 THE COURT: I understood there was only one witness.

24 MS. SILAS: Okay.

25 NEEL BARNABY, Ph.D.,



1 having been first duly sworn or affirmed, was examined and  
2 testified as follows:

3 THE COURTROOM DEPUTY: Thank you, please have a seat.

4 DIRECT EXAMINATION

5 BY MR. BUCHANAN:

6 Q. Dr. Barnaby, please state your name.

7 A. Neel Barnaby.

8 Q. And how are you employed?

9 A. I am a forensic examiner with the FBI Laboratory.

10 Q. And how long have you been employed with the FBI?

11 A. I've been employed with the FBI since 2005.

12 Q. Please pull that microphone a little closer to you.

13 A. I'm sorry.

14 Q. How long have you been with the FBI lab?

15 A. With the FBI Laboratory I've been employed since 2005.

16 I switched to an examiner position at the end of 2009.

17 Q. And is the FBI lab an accredited laboratory?

18 A. The FBI Laboratory is accredited to the ISO17025  
19 standard, even more so the unit I'm currently employed with,  
20 the Scientific Response and Analysis Unit, has been  
21 accredited to the ISO17020 standard.

22 Q. And you mentioned a particular unit that you worked with  
23 at the FBI lab. What is that unit?

24 A. The Scientific Response and Analysis Unit. It's the  
25 same lab I've been employed with since 2005; the name has

1 changed, though.

2 Q. Do you remember that previous name?

3 A. Yeah. We, before we were called the Scientific Response  
4 and Analysis Unit, it was the Chemical Biological  
5 Radiological Nuclear Sciences Unit. Prior to that it was the  
6 Chemical Biological Sciences Unit.

7 Q. And where is the SRAU located?

8 A. Our unit is located within the FBI Laboratory in  
9 Quantico, Virginia.

10 Q. And before -- you mentioned you joined the FBI in 2005.  
11 Prior to joining the FBI, did you have any biology research  
12 experience?

13 A. Yes. Before joining the FBI, I was a postdoctoral  
14 research associate at Duke University in the Developmental  
15 Cell and Molecular Biology Group. Prior to working at Duke,  
16 I was a postdoctoral research associate at the UC Berkeley  
17 Plant Gene Expression Center.

18 Q. Dr. Barnaby, do you have any teaching experience?

19 A. Yes, I do. I have taught as a teaching assistant in  
20 graduate school when I was getting my Ph.D. Currently I have  
21 a secondary duty as being the training program manager for  
22 forensic examiners in my unit. And as a forensics examiner  
23 in the SRAU, we also train agents that come to Quantico or to  
24 an offsite near Quantico regarding biological threat agents.

25 Q. And do you belong to any professional organizations?

1 A. Currently I'm out of scope on my American Phytopathology  
2 Society; I haven't paid the dues this year. But normally I  
3 participate in some of the plant pathology societies.

4 Q. And please describe your formal education.

5 A. I have a Ph.D. in biology, specifically in plant  
6 molecular biology and biochemistry. I have a biology degree,  
7 a bachelor's degree in biology and a bachelor's degree in  
8 chemistry.

9 Q. And have you published any scholarly works?

10 A. Yes. So I published research from my graduate studies,  
11 as well as a position before graduate school at the U.S.  
12 Department of Agriculture. I've also had the opportunity to  
13 publish or co-author book chapters in the area of microbial  
14 forensics, specifically in plant pathology.

15 Q. And have you given any professional presentations?

16 A. I've given professional presentations. Most of them  
17 were done before becoming a forensic examiner. The job duty  
18 has changed and time commitments are now elsewhere, but I  
19 have been requested or invited to speak, you know, on behalf  
20 of the FBI Laboratory in the field of microbial forensics.

21 Q. Dr. Barnaby, have you previously been qualified as an  
22 expert in the detection of biological threat agents such as  
23 ricin?

24 A. Yes.

25 Q. And have you testified in court before?

1 A. Yes.

2 Q. As an expert?

3 A. Yes.

4 Q. Approximately how many times?

5 A. Three times. One in state court and two in federal  
6 court.

7 Q. And have you actually testified here in the Gainesville  
8 courthouse before?

9 A. Yes.

10 Q. In this courtroom?

11 A. Yes. In this witness box.

12 Q. In this witness box. Was the subject of your previous  
13 testimony the detection of biological threat agents?

14 A. Yes. Specifically ricin. All three cases I've  
15 testified in have been for ricin.

16 Q. And you mentioned another federal case. Where was that  
17 case located?

18 A. That was in the Southern District of New York, also a  
19 ricin case.

20 Q. Has there been an instance where you were offered by the  
21 government as an expert but not allowed by the court to  
22 testify based on concerns that you do not qualify as an  
23 expert?

24 A. No.

25 MR. BUCHANAN: May I approach the witness, Your Honor?

1 THE COURT: You may.

2 Q. (By Mr. Buchanan) Dr. Barnaby, I've handed you what  
3 I've marked as Government's Exhibit 1. Please tell Judge  
4 Story what that item is.

5 A. This is a copy of my CV.

6 Q. And does that, does Government's Exhibit 1 sort of  
7 fairly and accurately capture your professional experience  
8 and qualifications?

9 A. Yes. The one thing I would add is I've got a -- we're  
10 updoing or redoing the book chapter. I published -- the last  
11 publication here was the second edition, we're currently  
12 redoing it to the third edition. So there will be another  
13 publication coming up soon.

14 MR. BUCHANAN: Your Honor, we move the admission of  
15 Government's Exhibit 1 into evidence.

16 THE COURT: Any objection?

17 MS. DUNN: No, sir.

18 THE COURT: It's admitted.

19 Q. (By Mr. Buchanan) Dr. Barnaby, let's talk about your  
20 current work and the methodology you use at the SRAU.

21 Please tell the Court what a biological threat agent is.

22 A. A biological threat agent could be a bacteria, a virus,  
23 a fungal agent or a fungal toxin, as well as any toxin  
24 derived from a biological entity that's taken outside of its  
25 natural state and used as a weapon to commit a crime.

1 Q. And specifically is ricin a biological threat agent?

2 A. Yes. Ricin would qualify as a biological threat agent.

3 Q. And what is ricin?

4 A. Ricin is a naturally occurring toxin found in the seed  
5 of the castor plant. It's categorized as a  
6 ribosome-inhibiting protein, and basically when it gets into  
7 a cell it prevents the cell from making new proteins and  
8 therefore it kills the cell.

9 Q. Is it dangerous?

10 A. Yes.

11 Q. What is sort of the bottom line as to what ricin does to  
12 people?

13 A. So as I mentioned, it prevents protein synthesis within  
14 a cell. Once ricin enters into a cell, it only takes one  
15 molecule of ricin to go into one cell to stop it from making  
16 proteins. And when you prevent a cell from making new  
17 proteins, once it runs out of the proteins it currently has  
18 that cell dies.

19 And if an organism is exposed to enough ricin and it  
20 gets into enough cells, you start killing tissue. Once you  
21 kill tissues, you can kill organs, and when you kill organs  
22 you kill the organism.

23 If ricin was to get into your blood it would attack your  
24 blood and your liver and you would most likely die of liver  
25 failure, if you had a lethal dose, within three to five days.

1 Q. And how does ricin get to the cells in that dangerous  
2 way that you mentioned?

3 A. You can be exposed to ricin in three basic ways. You  
4 can ingest it, which is the least toxic form of it, or you  
5 can get it injected or inhaled.

6 Injected, inhaled gets it directly to organs. So if  
7 it's injected it's going to directly attack the blood and the  
8 liver. If it's inhaled it's going to start to kill your  
9 lungs.

10 If you ingest it, again, that's the least toxic form,  
11 still very toxic, but it takes a little bit more to get  
12 through the gut and into the blood and then to go after the  
13 organs.

14 All three mechanisms of exposure will cause organ  
15 failure.

16 Q. And does ricin pose a danger if it touches your skin?

17 A. No. Ricin is not a dermal hazard. You can have a  
18 hundred percent pure ricin and hold it in your hand; if you  
19 have intact skin it won't get through the outer dermal layer.

20 Q. Please tell the Court how you and the SRAU test for  
21 ricin.

22 A. We use a number of different tests. And I think to  
23 basically understand the tests, it's to understand what  
24 question we're trying to answer with those specific tests.

25 There are three basic questions we're trying to answer.

1 What I failed to mention earlier about what ricin is, ricin  
2 is actually a family of toxic proteins. So it's not just one  
3 protein in that plant cell. There are approximately seven  
4 what we refer to as isoforms. They vary in the protein  
5 sequence that are toxic to humans or animals.

6 Now, the most toxic form is a form called RCA60. That's  
7 commonly referred to in the literature as ricin D or ricin E.  
8 So there are two isoforms that vary just slightly in the  
9 amino acid sequence, but both of them are very toxic. The  
10 others ones, other family members are toxic, they're just not  
11 as toxic as RCA60.

12 So with that in mind, the first question we're trying to  
13 answer when we conduct ricin testing is are any members of  
14 that ricin toxin family present.

15 MS. DUNN: I'm sorry, I'm having a hard time  
16 understanding what he's saying.

17 Can you just please speak a little slower?

18 THE WITNESS: I'm sorry, I know I talk fast. I got  
19 admonished by the judge the last time I was here. Okay, so  
20 let me start over.

21 So the first question we're trying to ask when we're  
22 testing for ricin is are any members of the ricin toxin  
23 family present in the sample.

24 The second question, if we get a positive that we  
25 detected a member of the ricin toxin family, would be is that



1     ricin toxin active. In other words, can it inhibit protein  
2     synthesis.

3             The third question is going to be is the most lethal or  
4     most toxic form present. So is RCA60 present in that sample.

5             Okay, so those are the three basic questions we're  
6     trying to answer.

7             Now, to answer that first question, is any member of the  
8     ricin toxin family present, we use an assay called  
9     enzyme-linked immunosorbent assay. It's referred to as  
10    ELISA.

11    Q.     (By Mr. Buchanan) What is an assay?

12    A.     An assay is a test. It's just a different way of saying  
13    a test.

14    Q.     Do your assays or do your tests require any equipment?

15    A.     Yes. All of them have -- for the ELISA, the first two  
16    tests we run it's run on the same piece of equipment. It's a  
17    piece of equipment called a plate reader. As a general piece  
18    of equipment I used it in graduate school. Other  
19    laboratories use it to determine whether RCA60 is present.

20             We use different mass spec instruments. Those are used  
21    in diagnostic communities, as well as research communities as  
22    well.

23    Q.     Let's start with the ELISA test for the presence of  
24    ricin.

25    A.     Okay. The ELISA test -- and there are different types

1 of ELISA assays. So if you were to pick up a biochemistry  
2 textbook, they would list different forms of the ELISA assay.

3 The one we are running is referred to simply as a  
4 sandwich ELISA. And if you can envision a sandwich being  
5 made, where you've got a slice of bread, a piece of cheese,  
6 slice of bread, and a toothpick with an olive, you can  
7 picture what's going on with the ELISA.

8 Now, obviously it's not bread. But instead of that  
9 first slice of bread, we have what is referred to as a  
10 capture antibody.

11 Now, an antibody, you may be familiar with it, is part  
12 of the animal's immune system, part of humans' immune system.  
13 An antibody is something that's generated to a foreign  
14 invader as part of the immune system, so it recognized what  
15 we refer to as an antigen.

16 Now, our capture antibody that we're using for ricin is  
17 made against -- it's made against ricin, so it recognizes  
18 ricin and only ricin.

19 So we have this first piece of bread put down. We put  
20 our unknown sample over that capture antibody. If ricin is  
21 present in the unknown sample, that capture antibody will  
22 grab the ricin out of that solution. Okay.

23 The next step would then be to use another antibody --  
24 excuse me, drink of water.

25 So if we've got ricin in our unknown solution, we've got

1 our capture antibody, the first piece of bread, the cheese  
2 would be the ricin.

3 Now, the next antibody we would use is referred to as a  
4 detection antibody. It's a different antibody made against  
5 ricin. So now if ricin is present it will detect the ricin  
6 that's been captured out of the solution. So we've got  
7 capture antibody, the ricin, and another ricin antibody.

8 All right. That top, that detector antibody, the last  
9 one that detected ricin, is made in goats. So we inject  
10 sublethal doses of ricin into a goat and then we extract the  
11 blood and purify the antibody out.

12 The third tests which are represented by the toothpick  
13 in the sandwich model is an antibody against goats. It's a  
14 mouse antibody where we inject goat serum in. So that  
15 antibody can detect anything from a goat. We throw that on  
16 there.

17 If that detector antibody is present being bound to  
18 ricin, that goat -- that anti-goat mouse antibody will bind  
19 to it.

20 But the mouse antibody has an enzyme linked to it. It's  
21 a protein that can change a substrate into a blue color. So  
22 if ricin is present, we've got the sandwich built, that's the  
23 well that this reaction is taking place in, will turn blue or  
24 bluish green, okay. So you're looking for a color change.

25 If ricin is not present in that sample, the sandwich

1 won't get built, there will be no color change. So it would  
2 stay clear and you would have a result of ricin not detected.

3 So if we get that blue result that's going to tell us  
4 that we have a member of the ricin toxin family present. I  
5 can't tell you which isoform is there from this test, we just  
6 know that one of the toxin or multiple toxins are present in  
7 the unknown sample.

8 THE COURT: You said there are seven isoforms in the --

9 THE WITNESS: Yeah. Now the next question, next test --

10 Q. (By Mr. Buchanan) If after you've completed that first  
11 test and you receive that blue or bluish-green positive  
12 result, what to you do next?

13 A. So if we've got a ricin detected result what we would go  
14 on to do is answer the second question: Is it active, right?  
15 I mean, we want to know is it toxic.

16 The second assay would use we refer to as cell-free  
17 translation assay. We abbreviate it CFT, everything in  
18 science is abbreviated.

19 With the CFT assay what we are doing is we are creating  
20 the inside of the cell, a living cell. We're actually taking  
21 the lysate out of rabbit blood from -- yeah, a rabbit blood  
22 cell, putting it in a tube. And we're adding RNA that  
23 encodes for the protein that makes the firefly glow. If  
24 you've ever seen fireflies, they glow bright light. We're  
25 going to create that protein in a tube and it will glow green

1 and our instrument can read that, whether it's glowing or  
2 not.

3 Now, you recall earlier when I said ricin prevents  
4 protein synthesis, so it prevents a cell from making  
5 proteins. So we've added our test mix in there. If we allow  
6 the test mix to sit on its own it will produce a glowing  
7 green protein and you would see that. If we add ricin to  
8 that mix it's not going to glow green.

9 And this is a two-part test, so this is the first part  
10 that we need to see. We need to see that whatever is in our  
11 sample that we're testing can turn off protein synthesis.  
12 But turning off protein synthesis is not specific to ricin.

13 One of the other agents we tested for in this case was  
14 abrin. Abrin is a ribosome-inhibiting protein just like  
15 ricin. So just turning off protein synthesis is just the  
16 first step.

17 I then have to have another result, it's a two-part  
18 test, where I take the antibody against ricin, add it to the  
19 unknown mix and then put that in my test mix.

20 The antibody will block ricin from turning off protein  
21 synthesis. So I've got to have the two results to say that I  
22 have ricin-specific activity. I've got to have it where  
23 ricin turned off the protein synthesis and then I have to  
24 show you where I turned off the ricin activity with the  
25 antibody.

1 THE COURT: That second test, you're not using as your  
2 sample on that the result from the first assay? You're using  
3 a fresh sample there so you haven't already separated out the  
4 ricin at that point?

5 THE WITNESS: What we do is we make a mix, a dilution up  
6 front, an aliquot of the sample, and then we just take  
7 individual samples out of that aliquot for all our different  
8 tests.

9 THE COURT: That's why you have to do the second level  
10 of test here, to be sure you're dealing with ricin?

11 THE WITNESS: Yeah. So the second level of test -- so  
12 the first one we're just trying to look for any of the family  
13 members. The second one we take another aliquot out of our  
14 diluted sample to see if it's active. The reagents aren't  
15 interchangeable, you have to do it separately.

16 So if I --

17 Q. (By Mr. Buchanan) Go ahead.

18 A. Continue? Okay, so now I've got a second result that  
19 I've got an active toxin. The third question, is RCA60  
20 present. So I want to know is the most toxic form of that  
21 there, you know, whether it's ricin D or ricin E.

22 For that we go to two different mass spec methods. You  
23 could run just one; we run them both to try to get to the  
24 same answer.

25 What we're doing with the mass spec method is sequencing

1 the protein. So proteins, you can think of them as a strand  
2 of pearls where each pearl is an amino acid, but the sequence  
3 of that amino acid is specific to ricin. So I can  
4 distinguish that from other proteins based off of the  
5 sequence.

6 Now, even though both methods were mass spec methods the  
7 way we get -- the upfront parts of the two methods are  
8 slightly different.

9 The first method that we do is called liquid  
10 chromatography-high resolution tandem mass spec, or mass  
11 spec/mass spec.

12 What we're doing -- and for both methods -- is the  
13 protein by itself is too large to, you know, inject into a  
14 mass spec and get a sequencing result. So we break it into a  
15 predictable fragment cleavage pattern.

16 We use an enzyme called trypsin, which cuts very  
17 specifically behind lysine and arginine amino acids. So if I  
18 know the sequence of the protein, whether it's ricin or any  
19 other protein, I can predict where trypsin will cut and I  
20 will know what peptides are going to, you know, be derived  
21 from that cleavage.

22 So with the LC method, we cleaned it with trypsin. We  
23 then subject it to the liquid chromatography, which separates  
24 out the peptides and then it gets injected into the mass  
25 spec.

1           Now, as I told you it was MS/MS. That first round of  
2 mass spec is going to select for peptides that would be of  
3 the same molecular weight or the same size as ones we would  
4 predict from ricin.

5           Once the instrument collects those peptides, it then  
6 subjects it to another round of mass spec and starts to look  
7 at the individual amino acid sequence. So we're getting a  
8 lot of information. We know we've got peptides that match  
9 ricin, but then we know specifically the peptides have  
10 sequence of ricin.

11           Now, with the other mass spec method, it's referred to  
12 as MALDI-TOF/TOF, stands for matrix assisted laser desorption  
13 ionization-time of flight/time of flight mass spec, which is  
14 another way to generate the protein sequencing but it's got a  
15 little bit more upfront work.

16           So instead of going straight to the enzymatic cleavage  
17 with trypsin, what we're doing is we'll take our sample and  
18 run it on an acrylamide gel. You can think of a gel as sort  
19 of a thin layer Jell-O-like material, and this Jell-O-like  
20 material has the ability to separate out the proteins of  
21 different sizes. So the smaller proteins will run very fast  
22 and run to the bottom of the gel; the larger proteins will be  
23 at the top of the gel.

24           Ricin in its intact form has two components, an A chain  
25 and B chain, that are bound together by two sulfur molecules.



1 We'll load one lane that's in a, we refer to as a non-reduced  
2 form, so it's the form that you would find in the seed, we'll  
3 see a protein that should run at the same molecular weight as  
4 ricin. So refer to it as 60 kilodaltons or -- it will run  
5 anywhere from 60 to 65 kilodaltons, depending on what  
6 isoforms are present.

7 We then take the same lane on the same gel but we add a  
8 chemical that breaks the A and B chain apart. So when that  
9 lane runs we're no longer going to see a protein at that 60  
10 kilodalton; we're going to see smaller ones.

11 THE COURT: What is that word, kilo- what?

12 THE WITNESS: Kilodalton. It's a measure.

13 THE COURT: Spell it.

14 THE WITNESS: Sure. It's k-i-l-o-d-a-l-t-o-n.

15 A dalton, it's kind of hard to relate back to, it's  
16 1/12th of a carbon atom's nucleus. So it's kind of hard.  
17 Just know that the higher the number of kilodaltons, the  
18 larger the protein; the smaller, the smaller.

19 So once we add this chemical and we break those A and B  
20 chains apart, we're going to see bands at the 30 and 35  
21 kilodaltons range. So we need to see that.

22 Once we see that, we actually take a razor, cut those  
23 bands, which represent where the protein is at, out of the  
24 gel. That is subjected to the trypsin digest I spoke about  
25 earlier and then those are loaded into the MALDI-TOF

1 instrument.

2 Now, MALDI-TOF is a little different than the other of  
3 the LC method. With the MALDI-TOF, you're mixing it with  
4 what we refer to as a matrix and that's where the matrix  
5 assisted gets its name from.

6 That matrix, once it's mixed with your sample, dries  
7 down on a plate and then it's hit with a laser and then the  
8 laser actually causes that matrix to go up into the  
9 instrument, gets sucked into it, and then it sort of just  
10 flies based on the mass to charge ratio. It acts more like a  
11 mass spec that we spoke of earlier.

12 So that first round of TOF is going to pick the peptides  
13 of the correct molecular weight and then that second round is  
14 going to start sequencing, breaking one amino acid off at a  
15 time and you're going to see the actual sequence.

16 So at end of both methods what we require before we can  
17 say that RCA60 is present is we need to see a minimum of four  
18 peptides that will match ricin, we need to see at least one  
19 from each chain, one from A, one from the B, and that we need  
20 to have it specific to RCA60.

21 There are times when we can get peptides that are common  
22 to all the isoforms in there, if we get those that are really  
23 uninformative to say RCA60 is present. So we report the  
24 result out as ricin as protein detected but inconclusive for  
25 RCA60. It's a band that RCA60 has but we can't distinguish

1 that from any of the other ones.

2 And those are the three methods that we utilize to  
3 detect ricin. Or the four methods, I should say.

4 Q. (By Mr. Buchanan) Dr. Barnaby, this methodology that  
5 you just described, is it used by other agencies?

6 A. Yes. The ELISA that I spoke of was developed by the  
7 Navy Medical Research Center. ELISAs are used throughout the  
8 research and diagnostic community, so that's a common  
9 technique. But specifically the assay we're using to detect  
10 ricin is used by the Department of Defense.

11 The activity assay that I spoke of was developed by the  
12 United States Army Medical Research Institute of Infectious  
13 Disease and it's used by other DoD labs. The enzymatic tests  
14 like this, not specifically the one we have, are used by  
15 other, you know, agencies, research institutes. I used an  
16 enzyme test in my graduate work, not specific for ricin but  
17 something similar. So enzyme tests, activity tests are not  
18 something that's uncommon.

19 The mass spec methods are definitely utilized by other  
20 disciplines.

21 All the tests that we are running, you know, are  
22 recognized as legitimate testing methods for other agents.  
23 For this one we just discussed, ricin, we used the same  
24 methodology to detect abrin. We've shared our reagents with  
25 the UK for SOP and the reagents.

1 Q. So these methods, the ELISA, the CFT, and the two mass  
2 spec tests, are they generally accepted in the scientific  
3 community?

4 A. Yes. Specifically our tests for ricin, we have an  
5 agreement with the Centers for Disease Control, if we have a  
6 case that involves, you know, human exposure, and we don't  
7 have enough sample to provide to the CDC, we have provided  
8 them with our SOPs and our validation material and they're  
9 willing to accept our results to make public health  
10 decisions.

11 Q. Let's talk about your work in this case. Did you work  
12 on some items in this matter on the case involving  
13 Mr. William Christopher Gibbs?

14 A. Yes.

15 Q. And approximately how many items did the lab receive?

16 A. We inventoried 45 items.

17 Q. And of those 45 items, did you test all of them?

18 A. No. We tested 28 items.

19 Q. And why did you not test all 45?

20 A. When we approach a case like this, we triage what  
21 samples we're going to test for ricin or abrin, and we tested  
22 both in this case.

23 So one of the first things I do when we're inventorying  
24 is look at materials, whether that would be something where I  
25 would expect to find ricin, or ricin could be present. So if

1 I received liquids or powders they're going to be a priority  
2 for testing.

3 The next type of evidence I'm looking for is evidence  
4 that could be used to extract ricin from the seed. This  
5 could be something as simple as a hammer, blender, solvents,  
6 used coffee filters, items such as that, general laboratory  
7 equipment, and so on.

8 Now, the third item would be items that were submitted  
9 more for the traditional forensics, like fingerprints or  
10 human DNA. So we would categorize, look at those items and  
11 swab them to clear them.

12 One of the things we would want to do is get it out of  
13 the laboratory that we're doing the testing in back to the  
14 lab at Quantico. If we can show that ricin's not present on  
15 those items it's easier to conduct the traditional forensics  
16 in Quantico than it is in the containment lab.

17 And then the fourth thing would be if swabs were taken  
18 during the time of collection, whether they're environmental  
19 swabs, like a table top, or of items that were, you know, not  
20 collected.

21 Q. In this case did you receive a variety of types of  
22 items?

23 A. Yes. We received multiple types of items.

24 Q. And after you determined that you would test 28 items,  
25 did you start with the ELISA test on those 28 items?

1 A. That's correct.

2 Q. And then after using the ELISA test, did you conduct the  
3 CFT test on those 28 items?

4 A. Yes.

5 Q. And then after conducting the CFT, did you conduct the  
6 mass spec test?

7 A. Yes.

8 Q. Dr. Barnaby, what were the results of your testing?

9 A. Four of the 28 samples that were tested for the presence  
10 of ricin we detected ricin in the four samples, specifically  
11 the RCA60 toxin based off the mass spec testing.

12 Of the 28 items we tested for abrin, none of them --  
13 abrin was not detected on any of the 28.

14 Q. These four items were tested positive for the most toxic  
15 form of ricin?

16 A. Yes.

17 MR. BUCHANAN: May I approach the witness, Your Honor?

18 THE COURT: You may.

19 Q. (By Mr. Buchanan) Dr. Barnaby, I've handed you what  
20 I've marked previously as Government's Exhibit 2. Please  
21 tell the Court what that item is.

22 A. So this is a copy of my laboratory report with the  
23 associated lab reports for the ricin and abrin testing, as  
24 well as seed identification, it's one of the tests we didn't  
25 discuss, but any time we get in seeds we would send that to

1 U.S. Department of Agriculture for identification.

2 Q. And why do you need to test seeds?

3 A. Seeds of ricin and abrin or any of the toxin that's in  
4 their natural occurring state, it's in -- ricin is in a  
5 castor seed. I'm not going to test something that, you know,  
6 it's there.

7 Q. And your findings typically with -- after the  
8 methodology has been conducted, are your findings peer  
9 reviewed?

10 A. Yes. Our findings are reviewed on a number of different  
11 levels. They're certainly tech reviewed at NBFAC. We peer  
12 review the work at FBI Laboratory, as well as  
13 administratively review it.

14 Q. And does, Government's Exhibit 2, does it fairly and  
15 accurately capture the results of your testing in this case?

16 A. Yes.

17 MR. BUCHANAN: Your Honor, we move for the admission of  
18 Government's Exhibit 2 into evidence.

19 THE COURT: Any objection?

20 MS. DUNN: Not for the purposes of this hearing.

21 THE COURT: It's admitted.

22 MR. BUCHANAN: Nothing further, Your Honor.

23 THE COURT: Ms. Dunn?

24 MS. DUNN: Yes, sir.

25 CROSS-EXAMINATION

1 BY MS. DUNN:

2 Q. Good morning.

3 A. Good morning.

4 Q. I'd like to start by talking about the cases that you've  
5 testified in before. You said there were two federal cases  
6 and one state case?

7 A. That's correct.

8 Q. Let's start with the state case. What was the charge?

9 A. The charge was murder for hire through use of ricin, and  
10 I believe there was another charge of child molesting but I  
11 wasn't quite aware of the full charges against the defendant.

12 Q. Okay. So you were tasked to find out whether or not  
13 this was ricin and you testified about whether or not it was  
14 ricin?

15 A. No. I was called in as an expert on ricin for that case  
16 to explain what ricin was and how it could be administered to  
17 someone.

18 Q. So you did not actually test anything in that case?

19 A. No, not for that case.

20 Q. You generally were basically a professor talking about  
21 ricin?

22 A. Yeah. I mean that would be a way to describe it.

23 Q. Okay. You said there were two federal cases. One was  
24 here in this courthouse?

25 A. Uh-huh.



1 Q. And that was a prosecution under 18 U.S.C. 175, correct?

2 A. I believe so. That's -- I'm a scientist.

3 Q. You're a scientist, you're not a lawyer?

4 A. Correct.

5 Q. But one of the things you do in science is you decide  
6 how to categorize things and what to call them, correct?

7 A. Correct.

8 Q. And if there's a legal definition of a substance, you  
9 look and see whether or not the substance fits within the  
10 legal definition?

11 A. Yeah. If I was provided a definition I could certainly  
12 do that.

13 Q. Okay. So with respect to the case you testified in  
14 court here, the terminology "select agent" was not ever an  
15 issue?

16 A. I don't recall if it was or not. It's been four years  
17 now.

18 Q. It was a biological toxin issue, correct?

19 A. Ricin, yeah, ricin is a biological toxin.

20 Q. Okay. And then tell me about the case you testified, I  
21 think you said in New York District Court?

22 A. In New York, that was an individual who was trying to  
23 purchase ricin. We had received in castor seeds but we did  
24 not receive in actual ground-up material.

25 Q. Okay. So did you test that material?

1 A. No. We didn't receive the ground material; we received  
2 seeds. As I spoke earlier, seeds go to the U.S. Department  
3 of Agriculture.

4 Q. So you did not test any material in that case?

5 A. No.

6 Q. So we only have one case that you've testified in where  
7 you've ever tested material?

8 A. Correct.

9 Q. And that was a case under 18 U.S.C. Section 175 and the  
10 issue was whether or not there was a biological toxin?

11 MR. BUCHANAN: Your Honor, I'd object. I believe this  
12 is going toward the motion to dismiss and not necessarily  
13 Dr. Barnaby's qualifications or his methodology.

14 THE COURT: I'll allow him, if he recalls, I'll allow  
15 him to testify. There's a record of what the charge was in  
16 that case, but as we're going to move to that issue later,  
17 while I've got him here I'm happy for you to ask him  
18 questions. So I'll overrule the objection.

19 MS. DUNN: Thank you, Your Honor.

20 THE WITNESS: Could you repeat the question? I'm sorry.

21 Q. (By Ms. Dunn) Probably not, I can try. That case was  
22 whether or not ricin was found and the defendant was charged  
23 with possession of a biological agent to use as a weapon of  
24 mass destruction.

25 A. Again, you know, I test for ricin. If that's the

1 wording in the charge, you know --

2 Q. You don't recall?

3 A. Yeah. It's not something that I would be able to speak  
4 to as an expert.

5 Q. Fair enough, that's fine. Are you familiar with the  
6 charge in this case?

7 A. Vaguely.

8 Q. Okay. Tell me what you know about the charge in this  
9 case.

10 A. Someone is being charged with possession of ricin out of  
11 its natural state. I mean, the items we tested and that  
12 tested positive are ricin that are not inside of the castor  
13 seed.

14 Q. Okay. Have you been asked whether or not -- strike  
15 that. Let me do this a different way.

16 You're not a lawyer, correct?

17 A. No.

18 Q. But you are a scientist?

19 A. Uh-huh.

20 Q. And you know the names of biological toxins and  
21 agricultural toxins and plant-based toxins and all of those  
22 things?

23 A. Yes.

24 Q. Okay. I'm going to hand you what's been marked as  
25 Defendant's Exhibit 1. Will you take a look at that?

1 A. Yes.

2 Q. Are you familiar with that listing of the Code of  
3 Federal Regulations?

4 A. Yes.

5 Q. Can you tell the Court what that is?

6 A. This is a listing of the overlap select agents of  
7 toxins. So select agents are biological agents, whether  
8 they're a bacteria, viruses, fungi, or toxins that have been  
9 deemed to potentially cause great harm to humans, which would  
10 be regulated by the Centers for Disease Control, or the U.S.  
11 Department of Agriculture, when they're potentially animal or  
12 plant diseases. This is a list of those agents that fall as  
13 an overlap between those two lists.

14 Q. And the code section at the top of that, could you read  
15 it into the record?

16 A. You're talking about in the box?

17 Q. Yes. Is it --

18 A. It says Code of Federal Regulations, Title 42, Public  
19 Health, Chapter 1, Public Health Service, Department of  
20 Health and Human Services, in parentheses References and an  
21 abbreviation of Annos, close parentheses, Subchapter F,  
22 Quarantine, Inspection, Licensing, Part 73, Select Agents and  
23 Toxins.

24 Q. And is that in specific Section 73.4?

25 A. Yes.

1 Q. Okay.

2 A. And that's titled Overlap Select Agents and Toxins.

3 Q. There is a listing --

4 MS. DUNN: First of all, Your Honor, I would move into  
5 evidence Defendant's Exhibit 1.

6 THE COURT: Any objection?

7 MR. BUCHANAN: No, Your Honor.

8 THE COURT: It's admitted.

9 Q. (By Ms. Dunn) There's a listing of items, things,  
10 toxins under subsection 1. Do you see that at the top?

11 A. You're talking about listed under B?

12 Q. Subsection B, okay.

13 A. Yeah.

14 Q. I'm sorry, I gave you my only copy. Do you see that?

15 A. Yes, the one titled Overlap Select Agents and Toxins.

16 Q. Okay. Do you see ricin on that list?

17 A. No. Ricin wouldn't be regulated on the overlapped  
18 agents. Ricin is regulated on the list put out by the  
19 Centers for Disease Control.

20 This is a list that causes disease between animals and  
21 people. So it's the overlap agents. Subsequently, there's  
22 USDA list for animal and plant pathogens that don't cause  
23 harm to humans.

24 So if we're looking at select agents there are three  
25 lists. Two of the main, I would call the parent lists, and

1 then there's the one, the overlap list, that would be agents  
2 that both agencies find harmful.

3 Q. In specific we'd like to look at 42 C.F.R. 73.4. So  
4 that's the one you have in front of you. So just on that  
5 list, and no other list are we talking about, do you see  
6 ricin?

7 A. No.

8 Q. Okay. Under subsection C where it says Genetic  
9 Elements, Recombinant and/or Synthetic Nucleic Acids, and  
10 Recombinant and/or Synthetic Organisms, do you see anything  
11 there that describes ricin?

12 A. No.

13 Q. And if you would quickly read through the rest of it,  
14 I'd like you to tell me if there is anything here that draws  
15 your attention to ricin.

16 A. No. As I stated earlier, ricin falls on the human list.

17 Q. We're talking about --

18 A. It's not on this list.

19 Q. -- this list.

20 A. It's not on this list.

21 Q. Not on this list. Let's talk about Defendant's  
22 Exhibit 2, which I am handing you now.

23 A. Thank you.

24 Q. And I will represent to you that that is 42 C.F.R. 73.5;  
25 is that correct?

1 A. Yes, it is.

2 Q. Okay. I'd like you to read through that and tell me if  
3 you're familiar with that list or that section.

4 MR. BUCHANAN: Your Honor, same objection as before.  
5 Just having him read the statutes does not go towards his  
6 qualification as an expert or the methodology used in this  
7 case.

8 MS. DUNN: It does go to the relevance under *Daubert*,  
9 which is the whole issue.

10 THE COURT: I'll overrule.

11 THE WITNESS: Okay.

12 Q. (By Ms. Dunn) Are you familiar with that code section?

13 A. I mean, yes, exemptions to Human Health and Services  
14 select agents and toxins.

15 MS. DUNN: I would move Defendant's Exhibit 2 into  
16 evidence.

17 MR. BUCHANAN: Same objection.

18 THE COURT: It's admitted.

19 Q. (By Ms. Dunn) And is there -- this is basically  
20 exemptions regarding select agents and toxins, right?

21 A. Yes.

22 Q. There's no list of select agents and toxins contained in  
23 this --

24 A. No.

25 Q. -- C.F.R.? Okay. Now I'm going to hand you Defendant's

1 Exhibit 3, it's 42 C.F.R. 73.6, and ask if you recognize it  
2 as well.

3 A. Okay, it's exemptions for the overlaps, like the agents  
4 and toxins.

5 Q. And again, it does not --

6 MS. DUNN: Well, first let me move it into evidence as  
7 Exhibit 3.

8 MR. BUCHANAN: No objection, Your Honor.

9 THE COURT: It's admitted.

10 Q. (By Ms. Dunn) It too is exemptions and doesn't contain  
11 a list of select agents, correct?

12 A. Correct.

13 Q. So of the three code sections I have given you, only  
14 42 C.F.R. 73.4 contains a list of select agents?

15 A. Of these three, that's correct.

16 Q. Okay. And ricin is not on that list?

17 A. No.

18 Q. And it's not on the other two lists I've given you?

19 A. No.

20 Q. Now, I do understand that ricin is on 42 C.F.R. 73.3,  
21 correct?

22 A. I don't know the actual number, but it is on one of the  
23 lists that's overseen by the Centers for Disease Control.

24 Q. So I'm going to hand you 42 C.F.R. 73.3, and tell me if  
25 that refreshes your recollection that that is the list that



1     ricin is contained on.

2     A.     Yes.   Both ricin and the abrin are on this list.

3           MS. DUNN:   Your Honor, could I have just a moment?

4           THE COURT:   Yes.

5           (Pause in the proceedings.)

6     Q.     (By Ms. Dunn)   So let's talk about, moving to a  
7     completely different subject matter, let's talk about the  
8     testing that was done in this case.   I have some questions.

9     I am not a scientist in any respect and I'm going to say  
10    stupid things, please feel free to correct me.

11           First of all, did you do the tests or did other people  
12    do the tests?

13    A.     No.   The testing was done at my direction at the  
14    National Bioforensic Analysis Center.

15    Q.     Were you physically present when it was done?

16    A.     Not during the testing.   One of my colleagues was  
17    present during the inventory when it first arrived.   It was  
18    on a weekend.   I went there the following, I think Monday or  
19    Tuesday, to inventory the items again as they were being  
20    processed, and then the testing would take place after I  
21    left.

22    Q.     Who was the colleague that was there?

23    A.     Dr. Robert Bull.

24    Q.     So he did some of the inventory and you did some of the  
25    inventory?

1 A. He initially took the evidence in. So when evidence  
2 arrives at the lab we have to open it up to ensure the  
3 integrity of the packaging. He then did an initial look  
4 through the evidence. Then when I received it in the lab a  
5 few days later, I was the one who actually put it in the  
6 computer system for the FBI Laboratory.

7 Q. Okay. So basically what you did is you saw what came in  
8 and you made a listing in the computer about what was there?

9 A. No. That would not be the full thing of what I did.  
10 That's just one small aspect of it.

11 One, as an examiner, as we discussed earlier, I've got  
12 to assess the items for testing and specifically how I want  
13 them tested.

14 In working with the sample processor at the NBFAC I'm  
15 going, reviewing the items of evidence, explaining to them  
16 how I want them swabbed to pull a sample off of the item or  
17 we're going to list saying I want you to pull X amount of  
18 liquid out of the sample or weigh X amount of powder off of  
19 certain samples.

20 The other part of the job is when I mentioned items that  
21 may be of value for traditional forensics, I will explain to  
22 them how, you know, handle it in a certain way, this is where  
23 I want you to test this item to swab for further testing.

24 Once I have the sample processors on board with how  
25 we're going to handle it, we type up a sample analysis plan.

1 I explain to them what assays I want them to conduct on those  
2 items, and that document is referred to as a sample analysis  
3 plan. It's in essence a contract between myself and them and  
4 they're not allowed to deviate other than the directions that  
5 I provided them.

6 If something comes up during the process of testing, I  
7 think during, I think the CFT assay, prior to the ricin or  
8 abrin testing, there was a bubble in one of the wells, the  
9 reaction wells. That's a nonconformance, that would  
10 interfere with the camera reading, whether the color changed.  
11 They had to call me to get permission to retest that item.  
12 So once we agree on the sample analysis plan, you know,  
13 that's basically their marching orders and they're not  
14 allowed to deviate.

15 Q. Okay, so let's break that down a little bit.

16 A. Okay.

17 Q. You're not there when the testing occurs but you tell  
18 them what you want them to do when they test?

19 A. Yes.

20 Q. Okay. Do you do that verbally or in writing?

21 A. Both. So we're working with them at the laboratory,  
22 explaining the item, explaining to them how I want them to  
23 sample them, sample the items.

24 I'll then work with the NBFAC director to start  
25 generating a sample analysis plan and then that can be

1 provided to me electronically or in person, if it's typed out  
2 while I'm at the lab. Then I'll approve that verbally and in  
3 writing.

4 Q. Okay, so there is a written sample analysis plan  
5 regarding this case somewhere?

6 A. Yes.

7 Q. And you have access to that?

8 A. Yes.

9 MS. DUNN: Your Honor, I believe that we're entitled to  
10 that in discovery and I would ask that the government produce  
11 it to us.

12 Q. (By Ms. Dunn) Okay, so next, when you're telling them  
13 how to swab the things you want swabbed, do they actually do  
14 it in front of you or they do it later when you're not there?

15 A. It depends on the case.

16 Q. This case. I only care about this case.

17 A. I would have to go to my file to find out.

18 Q. Do you have it with you?

19 A. No.

20 Q. Okay. You knew you were testifying about this case  
21 today?

22 A. Not specifics of that. I thought I was testifying  
23 regarding the science today.

24 Q. Okay. So you don't know if you were there or not?

25 A. No. I was present the day we started the sample

1 processing. I just don't recall if I was actually in the lab  
2 when they actually started the testing.

3 Q. Well, that's what I'm asking, were you in the lab? Were  
4 you physically present when any of the items were swabbed in  
5 this case?

6 A. And that's something, I don't recall that at the moment.

7 Q. Were you physically present when any of the testing that  
8 you've described was actually conducted?

9 A. No. The testing occurs over a couple of weeks,  
10 actually. The ELISA and the CFT, we usually have results for  
11 the ELISA within about 48 hours of the samples arriving or  
12 when we start testing. The CFT will be about 24 to 36 hours  
13 after that. And then the mass spec testing takes a few  
14 weeks.

15 Q. And somebody else, not you, is doing that testing?

16 A. Correct. We have technicians in the lab that are  
17 conducting the testing.

18 Q. And they're the ones who review the results and tell you  
19 the results?

20 A. The results are reviewed by a number of folks.  
21 Certainly the technician getting the results off the  
22 instrument would review it. The program manager for the  
23 different testing components in the laboratory would review  
24 those results. The NBFAC director would review the results.  
25 And then I would get the results.

1 Q. And when you get them they're already signed off on by  
2 the three other people you talked about?

3 A. No, not at that point. Sometimes we get the results in  
4 before the final report is even written, but certainly the  
5 final report doesn't go forward until I've had a chance to  
6 look and ensure that everything that I requested to be done  
7 was done the way I requested it. So the final report doesn't  
8 get finalized until I say it's good to be finalized.

9 Q. Okay. And how do you know that it's done the way you  
10 requested? Because they tell you?

11 A. Yes and no. I mean, we have a quality assurance system  
12 at NBFAC. The testing is accredited with outside agencies  
13 with that program. I have no reason to doubt that they  
14 wouldn't be following the SOP.

15 Q. So if you have no reason to doubt it, then every time  
16 you get the results they should be exactly what you asked  
17 for, right?

18 A. They usually are. Again, with the quality assurance  
19 checks, you have to ensure that it's done correctly.

20 Q. Again, other than read the report and see what the  
21 results are, do you have any way independently, you  
22 personally as a person with personal knowledge standing in a  
23 lab, know what's being done?

24 A. Know what's --

25 Q. Other than relying on other people --

1 THE COURT: Let me say, this is not a deposition. This  
2 is a *Daubert* hearing.

3 MS. DUNN: Yes, sir.

4 THE COURT: You're getting into weight of the testimony,  
5 not his qualifications to do it. We all know that experts  
6 can rely on others to perform their functions and so forth.  
7 So I don't want -- this isn't going to be his full-blown  
8 testimony. This is about *Daubert*.

9 MS. DUNN: I understand.

10 THE COURT: Okay.

11 THE WITNESS: I'm sorry, can you repeat the question?

12 Q. (By Ms. Dunn) Personal knowledge --

13 THE COURT: I think he's already answered he didn't do  
14 the test, he's relying on what the others did.

15 Q. (By Ms. Dunn) With respect to you talked about three  
16 different tests, one in two parts, can you tell me the  
17 equipment that is used in each of those testings?

18 A. We use four -- we have four different tests. For the  
19 ELISA and the CFT, it is a plate reader. It's just a  
20 machine, kind of describe it as looking like a toaster oven.  
21 It has a little platform that will come out, you put the  
22 plate on, goes in, and there's a camera that looks for light  
23 when we excite the proteins that are going to either turn  
24 colors or glow with the specific wavelength of light. So  
25 both the ELISA and CFT rely on a plate reader.

1 For the two other tests we rely on mass spec  
2 instruments. As I said earlier, one of them is referred to  
3 as an LC, a high-resolution MS/MS instrument. The other one  
4 is a MALDI-TOF/TOF mass spec.

5 Q. And with respect to the plate reader that's like a  
6 toaster oven and then a camera looks for the light, is there  
7 a particular brand that you use?

8 A. I believe it's Thermo Fisher. I'd have to rely on the  
9 SOP to get the exact brand because the companies have sold  
10 out, they changed ownership. But I believe it's a Thermo  
11 Fisher.

12 Q. I was going to ask you that question with respect to all  
13 of this equipment, would they all be in the SOP if I get a  
14 copy of that?

15 A. Yes. It should be listed in the SOP as part of the  
16 equipment. In regards to the LC high-resolution MS/MS, that  
17 is a Thermo Fisher product, with the MALDI-TOF/TOF  
18 instruments, it's an AB SCIEX piece of equipment.

19 Q. Okay. And with respect to each of these, is there some  
20 sort of scientific algorithm that is used to determine the  
21 end result?

22 A. With the plate reader it's just an Excel spreadsheet.  
23 You're just doing calculations based off the amount of light  
24 compared to a standard curve of actual positive ricin. With  
25 the mass spec instruments, there are software specific to



1 those model instruments.

2 Q. So it's something that comes with the equipment; it's  
3 not something that is a software that's loaded on afterwards?

4 A. For the mass spec methods it is equipment that would run  
5 the instrument, yes.

6 Q. One of the --

7 A. Actually, let me clarify. So you've got the software  
8 that runs the instrument. Some of the analysis of when it's  
9 comparing it to the database, that could be another software  
10 package called Mascot. So that's outside of -- it doesn't  
11 actually run the instrument but that is another piece of  
12 software. And the vendor that sells the equipment does sell  
13 that, so there is a little bit of a distinction with the  
14 MALDI.

15 Q. And all of those would be in the SOP?

16 A. Yes.

17 Q. Okay. And so I understand, when data comes out of a  
18 mass spec, as I understand it, it comes out like as  
19 mountains?

20 A. Peaks, yes.

21 Q. Peaks, okay. And when you say compare them with  
22 known -- what did you say, known --

23 A. They call them spectra.

24 Q. So what you do is you have a list of things, certain  
25 peaks, and you compare what came out of the mass spec with

1 the list of things you have, and if the peaks match you say  
2 it's a match?

3 A. That's one way to do data analysis. But with mass spec  
4 technology you typically want to run a positive control. In  
5 this case would be ricin, actually commercial purchased  
6 ricin. Just because there are calibration, it's one of the  
7 quality control measures when running a mass spec, you run a  
8 calibration mix but you also want to make sure that you  
9 understand how ricin, peptides and, you know, the subsequent  
10 sequencing are working on your instrument. So you would have  
11 a positive control of ricin so you could compare it to the  
12 database or the expected spectra, plus what the actual  
13 positive control looks like.

14 Q. And that would be in the SOP?

15 A. Yes.

16 Q. And the results of that would be in the SOP?

17 A. The results of the work?

18 Q. The results, would that be in the SOP or no?

19 A. No, the results of the analysis won't be in the SOP.  
20 The SOP is a standard operating procedure that's applied to  
21 different cases. The results are not, for any given case,  
22 are not going to be an in an SOP.

23 Q. I understand. And the report that the government put  
24 into evidence, that's the final report, correct?

25 A. That's correct.

1 Q. Do you get other documentation? Do you actually get the  
2 printout of the peaks?

3 A. That comes in the discovery, the disk we provided from  
4 NBFAC for discovery. So you will get the raw data as well.

5 Q. Okay, and you've provided that to the government?

6 A. I believe we have, yes.

7 Q. Okay.

8 MS. DUNN: Your Honor, I would ask that we be provided  
9 with the raw data too, I don't think we have that.

10 MR. BUCHANAN: My records show that we sent it December  
11 6th, 2017. It's a disk, looks like this.

12 THE COURT: If it's been sent it's not necessary,  
13 obviously, but --

14 MS. DUNN: We'll double-check and if not will you make  
15 it available again?

16 MR. BUCHANAN: Absolutely.

17 MS. DUNN: Thank you, then I won't waste any more time  
18 on that.

19 Q. (By Ms. Dunn) When you do the testing where the light  
20 turns blue, is that videotaped or is there any kind of photo  
21 documentation of that?

22 A. Of the testing?

23 Q. Of the turning blue.

24 A. No. So what it's doing is it's calculating the degree  
25 of how blue it is. So if you have very small amounts of

1     ricin present it will be a faint blue versus a darker blue.

2             The output of that we refer to as the optical density,  
3     abbreviated OD. You will get an output of that and that will  
4     go into an Excel spreadsheet. That should have been provided  
5     as well.

6     Q.     Okay, so that's in the data that we were just talking  
7     about?

8     A.     Yes.

9     Q.     All right. One of the things you said is when you get  
10    the material you prepare the substance for testing and you  
11    talked about a solution. So tell me how that works.

12    A.     So one of the methods, if you have a powder, all of our  
13    assays are done in liquid form, so if we get a powder I've  
14    got to dissolve an amount of that powder into a buffer. The  
15    dilution buffer is going to be what we refer to as PBS, it's  
16    phosphate buffered saline. It's commonly used throughout  
17    other, you know, diagnostic research communities or just  
18    university research. It's just diluted in the PBS.

19    Q.     Okay, so it's basically a way to liquify the material?

20    A.     Yeah, dissolve the powder. If we've got liquid we don't  
21    have to, obviously, dissolve it. If I've got enough there --  
22    you know, if I only had a drop I might bring it up to a  
23    certain amount.

24    Q.     What if it's not a powder but it's a chunky, solid  
25    substance?

1 A. Chunky, solid substance, we do encounter those every  
2 once in a while. And even with some of the powdered mixtures  
3 they don't readily go into solution. We have tubes that have  
4 a little plastic, it's sort of like a mortar and pestle. If  
5 you've ever seen in a pharmacy where they've got the white  
6 thing where they grind, we have small Eppendorf tubes that  
7 have a plastic tip that will go down and we can grind the  
8 chunky material and try to liberate any, if there's ricin  
9 present, into solution. Ricin is referred to as a soluble  
10 protein, so it readily goes into solution. So it doesn't  
11 take much grinding of a chunky particle.

12 Q. Okay, so let me ask you this. If you had some chunked  
13 up castor beans and you took your little mortar and pestle  
14 and you ground it up and put it in the phosphate buffered  
15 saline, the saline would pull out the ricin?

16 A. Yes. Ricin would dissolve in the solution, an aqueous  
17 solution.

18 Q. Okay. And then you would use the entire material,  
19 including any of the undissolved solids, or you would just  
20 use the liquid that's dissolved?

21 A. We'd just use the liquid that's dissolved. We don't use  
22 it in its entirety. So as I mentioned earlier, we'll make up  
23 an aliquot and use it for all the different testing methods  
24 that we discussed. We would also save approximately a mil as  
25 well.

1 Q. So if I took a castor bean and I chopped it up into  
2 pieces and it came to your lab for testing, you wouldn't test  
3 the entire thing; you would try to draw out ricin but you  
4 wouldn't know what else was in there?

5 A. So we wouldn't test an entire -- we wouldn't consume  
6 evidence in its entirety, anyway. We would take out a small  
7 amount of it. Probably if I had one castor seed worth, it  
8 would be anywhere from 10 to 30 milligrams' worth, very small  
9 amount. From that we would grind it up into the liquid and  
10 test.

11 Now, with all biological exams, it's agent specific. So  
12 we're asking the question is this agent present. So when I  
13 talked about the ELISA, I talked about antibodies that were  
14 specific to ricin. We're only looking for ricin in that  
15 test.

16 When I ran the same test for abrin, I'm only looking for  
17 abrin. And the same when we got to mass spec, we're  
18 selecting for peptides of ricin or abrin. In this case it  
19 was just ricin.

20 Q. Okay. So basically you know what you're looking for and  
21 you look for those peptides to see if it's present?

22 A. Yeah. We know an agent that we're saying we want to  
23 test this stuff for the presence of X agent, so in this case  
24 ricin.

25 Q. But you don't test for everything that's contained in

1 the sample that you take?

2 A. No.

3 Q. Okay. So, for instance, if it's a castor bean and it's  
4 just one slice of a castor bean, say I've sliced it into  
5 pieces and you just get the one slice, you would just take a  
6 portion of that slice because you don't want to use all the  
7 evidence, right, but you would take a portion of it, you  
8 would put in your -- you would chop it up with your little  
9 mortar and pestle, right?

10 A. Yes.

11 Q. Put in your phosphate buffered saline that would draw  
12 the protein out, especially ricin because ricin is  
13 particularly protein soluble in water, right?

14 A. Uh-huh.

15 Q. But it wouldn't draw out all the other stuff that's in  
16 ricin, a ricin bean? A castor bean, pardon me.

17 A. No. Anything that is soluble will dissolve in that  
18 solution. Anything that would, again, dissolve in water will  
19 dissolve in the phosphate buffered saline.

20 Something like the oil, which we refer to as  
21 hydrophobic, you know, oil and water don't mix, so oil is not  
22 going to dissolve in the phosphate buffered saline. So  
23 things like carbohydrates, sugars, other proteins,  
24 potentially the nucleic acids, DNA and RNA, would dissolve in  
25 that phosphate buffered saline.

1 Q. Okay, so you went exactly where I was going next. So if  
2 it's part of a castor bean, that's about 60 percent oil,  
3 right?

4 A. 40 to 60 percent depending on the cultivar.

5 Q. And some of a castor bean is -- well, they're proteins,  
6 there are about 50 or more different proteins in a castor  
7 bean?

8 A. There are a number of different proteins in there.  
9 Ricin or the family of ricin represents 1 to 5 percent of the  
10 weight of the seed. RCA60, the more toxic form, and another  
11 member of the RCA120 represent the bulk of that 1 to  
12 5 percent.

13 Q. Okay. Other than that 1 to 5 percent, there are a ton  
14 of other proteins in the castor bean?

15 A. Yeah, there are other proteins present.

16 Q. Okay. Are they all equally soluble in water?

17 A. Proteins are going to depend on the amino acid sequence.  
18 I couldn't say that all of them would be soluble in water.  
19 It's going to depend on how hydrophobic they are.

20 When you're extracting proteins out of a plant you've  
21 got some that are very soluble that readily go into water,  
22 some are mildly soluble and you can add chemicals to help get  
23 them in the solution to dissolve, and there are other ones  
24 that are very hydrophobic and will just repel water, they  
25 will not dissolve.



1 Q. So some of the proteins are water soluble and some are  
2 not?

3 A. Yes.

4 Q. None of the oil, 40 to 60 percent, is water soluble?

5 A. Correct.

6 Q. So by running this test you're actually pulling ricin  
7 out of something that used to just be a castor bean?

8 A. Ricin by its very nature is out of a castor seed. It  
9 doesn't matter, you know, in what form it is. Ricin is  
10 ricin.

11 Q. Well, it's not illegal to possess a castor bean?

12 MR. BUCHANAN: Objection, Your Honor; calls for a legal  
13 conclusion.

14 THE COURT: Sustained.

15 Q. (By Ms. Dunn) Is a castor bean considered a biological  
16 toxin?

17 A. I would not consider a castor bean a biological threat  
18 agent. It does contain a biological toxin.

19 Q. And when we looked at the C.F.R. list, the 73.3, it does  
20 not contain castor beans; it only contains ricin, correct?

21 A. That's correct.

22 Q. And you know that castor beans are not illegal to  
23 possess?

24 A. That's correct.

25 Q. So by taking the slice of castor bean, which was my

1 hypothetical, and taking a mortar and pestle and breaking it  
2 up and putting your solution on it that draws out  
3 specifically water-soluble proteins, which includes ricin  
4 because it's extremely water soluble, you're testing  
5 basically for ricin, but you're not testing what was actually  
6 possessed by the person that that slice of castor bean came  
7 from, just from one aspect of what was in that material?

8 A. I'm testing for the presence of ricin outside of its  
9 natural state, which is in an intact castor seed. So I would  
10 not be slicing an intact castor seed. If I get an intact  
11 castor seed, I'm sending the seed to the U.S. Department of  
12 Agriculture.

13 So if I've got parts of the seed where I couldn't -- you  
14 know, it's not an intact seed. We would take a part of  
15 whatever material came in, whether it's a chunk, a powder, or  
16 a liquid, and we would test for the presence of ricin.

17 Q. Okay, fair enough. And with all of these testings that  
18 you've done and in your report, you cannot tell the Court  
19 what else was in those substances that you received?

20 A. No. Specifically we were testing for the presence or  
21 absence of ricin.

22 Q. One test that you talked about, was it the ELISA test  
23 where you talked about using a mouse antibody and an  
24 anti-goat something?

25 A. Yes. We use -- to what you're referring to was the

1 detection antibody, was a goat antiricin antibody and then  
2 the conjugant antibody is a mouse anti-goat antibody.

3 Q. Tell me what that means.

4 A. Okay. So the detection antibody, the goat antiricin is  
5 an antibody produced by goats who have been inoculated with  
6 ricin. The antibodies are purified away from all the other  
7 antibodies that the goat may be producing and then that's  
8 utilized in our test.

9 The mouse anti-goat antibody is a mouse that's been  
10 injected with goat serum, so it's producing antibodies  
11 against goat material. It's purified in the same way as the  
12 ricin antibody would be.

13 Q. And what they do is they somehow let you know if ricin  
14 is present?

15 A. Yeah, they're specifically -- the capture and the  
16 detection antibodies have been validated to detect ricin.

17 Q. Is ricin a toxin to things like rodents, mice, or rats?

18 A. Yes. Ricin is toxic to all mammals.

19 Q. You said that quality control measures were done in  
20 order to reduce the error rate, I think you said that earlier  
21 when you were testifying. What is the error rate --

22 A. I don't recall mentioning error rate.

23 Q. You don't recall --

24 A. I don't recall talking about that.

25 Q. Okay. Well, do you do quality control measures?

1 A. That's correct.

2 Q. And do you do that to reduce the error rate?

3 A. We do that to ensure that we're not getting errors and  
4 ensure that our assay is working as it's designed to do.

5 Q. Do you consider -- okay, so I'm used to doing this  
6 mostly with things like cocaine and methamphetamine and we're  
7 always given an error rate, plus or minus 4.3. Are you  
8 familiar with that?

9 A. I think you're speaking of standard deviations and not  
10 necessarily an error rate. An error rate says you've got  
11 something that's occurring that's producing a false result.

12 Our assays, we don't accept an error rate. So if we --  
13 it's not to say that we don't have error, you know, we have a  
14 nonzero error rate, but the error rate would be something  
15 like a human error. That's not something that's going to  
16 occur on a regular basis. So we can't establish a rate, but  
17 we monitor that through having controls with our assays.

18 Q. So you're saying the testing itself doesn't have an  
19 error rate but you realize that human error could sometimes  
20 occur?

21 A. Yeah. I would say it's a non-calculable error rate and  
22 that's why we monitor with controls.

23 MS. DUNN: Can we have just a moment, Your Honor?

24 THE COURT: Yes.

25 (Pause in the proceedings.)

1 Q. (By Ms. Dunn) So let me just make sure that I'm clear.  
2 I understand that if you get a whole intact castor bean that  
3 you will not do a test on it because it's a whole intact  
4 castor bean?

5 A. Normally. There's been cases where something -- there  
6 was information that they requested the whole, but in general  
7 we do not test an intact seed.

8 Q. But it's fair to say that if you did a test like these  
9 few times on a whole intact castor bean, that you would find  
10 ricin?

11 A. Correct.

12 Q. Because ricin is always in a castor bean?

13 A. Ricin is a naturally occurring toxin found in the castor  
14 seed.

15 Q. Is ricin something that dissipates over time?

16 A. Dissipates in which --

17 Q. For instance, if it's exposed to environmental forces,  
18 could it go away or degrade?

19 A. Yes. So with ricin in a powdered or dry form, it's very  
20 stable protein. In liquid form, especially if it's not a  
21 very pure mixture in that liquid, things can start to break  
22 it down. Certainly heat above 80 degrees Celsius, which is  
23 approximately 176 degrees Fahrenheit, heat will what's  
24 referred to as denature it and that may cause it to unfold  
25 and becomes nontoxic.

1 Q. Okay, unfold. So what you're talking about is the  
2 proteins and the way that they're ordered together in a  
3 structure and if heat is applied it unfolds, it opens up its  
4 structure and it's no longer toxic?

5 A. Correct, generally speaking. I mean, it can sometimes  
6 refold in something that's less toxic, but in general I would  
7 say if it's denatured, when it cools down, if it was through  
8 heat, it's not going to form ricin, the toxic form, the  
9 active form again.

10 The easiest way to think of it is you crack open a raw  
11 egg, it's runny. You heat up the proteins, you denature  
12 them. When you cool the egg off, it doesn't go back into a  
13 runny state, it stays in whatever form, you know, it twisted  
14 into.

15 Q. What are other ways that you can denature ricin besides  
16 heat?

17 A. Extreme pHs.

18 Q. Such as? How would you do that?

19 A. You could use strong acids, strong bases would do it.  
20 Certainly cleaving it with another enzyme, like we do in our  
21 testing. Breaking it into pieces would do it. I had  
22 mentioned also a chemical that we add to it when we're  
23 running the gels, that's denaturing it.

24 Q. So are there chemicals that are sold in grocery  
25 stores or --

1 THE COURT: I'm just struggling with the relevance of  
2 this.

3 MS. DUNN: Okay.

4 Q. (By Ms. Dunn) Specifically how does the adding an  
5 acetate change a castor bean and make it more or less ricin?

6 A. So it's not going to make it more or less ricin. When  
7 we're talking about adding a strong acid to that amino acid,  
8 it's going to potentially cleave parts of it off, the amino  
9 acid.

10 So when I said you have a -- think of it as a chain of  
11 pearls, think if I took a pearl off but the string was still  
12 there, you could take chips at it and it would denature it.

13 So when you look at proteins, and that's not just ricin,  
14 any protein, they have what we call structure, okay. It's a  
15 macromolecule, not just a small chemical. The primary  
16 structure is that amino acid sequence, so that's what makes  
17 it that protein.

18 So with ricin we have a known amino acid sequence. So  
19 whether it's in its native form, the active form, or  
20 denatured form, it's still ricin, it's just active or not  
21 active.

22 The easiest way to think of it is if right now you see  
23 me talking, you know, it's a live version of me. If I have a  
24 heart attack and die, it's still me, it's just a dead version  
25 of me.

1 Ricin is the same. Proteins are the same way, or  
2 enzymes -- proteins that are enzymes are the same way, you  
3 could have the active form and the inactive form.

4 Now, the other structures that are protein, or we  
5 mentioned folding, you have secondary structure, and these  
6 are repeatable structures that are found in all different  
7 types of proteins. So we'll have an alpha helix. And if  
8 you're old enough to remember a telephone cord, when they're  
9 hanging and you have that curl thing, it's a structure that  
10 the protein will form that looks like the old telephone  
11 cords.

12 You also have a structure called a beta sheet, which  
13 looks like a folded ribbon. Proteins will form these when  
14 they're folding and being developed inside of a cell and  
15 under specific conditions. So when you change the  
16 environment and relax those structures they don't typically  
17 go back to that structure.

18 Third structure to think about when you're looking at  
19 these are once I get these alpha helix and beta sheets  
20 formed, I wrap them all together into a glob, almost like a  
21 ball of string. So if I took my string of pearls and just  
22 knotted it up, that's specific to the active -- or protein,  
23 right, in its native form. If I relax that structure I'll  
24 inactivate the protein.

25 The fourth structure is referred to -- it's basically



1 when I take two separate domains and attach them together.

2 So when I mentioned earlier that A chain and that B chain  
3 binded by a disulfide bond or a sulfur bond, that's a fourth  
4 structure. So you could chemically cleave that and turn this  
5 into a non, you know, functioning protein.

6 But at the end of the day as long as you haven't altered  
7 that primary structure and that amino acid sequence is there  
8 it's still that protein.

9 Q. Okay. So let me see if I understand what you're saying.  
10 It's still a ricin protein but if you add acetone to it you  
11 can make it less toxic.

12 A. Okay. So acetone is an organic solvent and not to be  
13 confused with acid. Acid is different. Think of acid as  
14 sort of like what's in your battery or muriatic acid you buy  
15 and put in your pool, very --

16 Q. I don't mean to interrupt, but small brain, blond hair.  
17 I'm talking about acetone in particular. How does that  
18 affect?

19 A. Acetone, you can use acetone to purify ricin. Normally  
20 it's called organics -- it's the equivalent to adding a salt,  
21 we call it salting out. You can do an organic extraction  
22 where you add it and get a protein to purify out.

23 Now, with ricin typically you would use an organic  
24 solvent like acetone, which is the equivalent of fingernail  
25 polish remover, to remove the oil. So you're not using it to

1 precipitate out the protein, more so you're trying to get rid  
2 of the castor oil.

3 Q. Okay. And if you were doing that would you use a large  
4 quantity, like a gallon-size jug for a dozen castor beans, or  
5 would you use a very small quantity?

6 A. You're asking what I would use?

7 Q. I'm asking -- I'm assuming you have read treatises on  
8 these sorts of things and you understand how it's done. If  
9 not, that's fine, you can just tell us you don't understand.

10 A. No, I understand where you're going, but having purified  
11 proteins that would take a different track on doing that and  
12 I would have -- you know, I understand more scientific  
13 methods that I would go down the road of doing that.

14 The protocols I think you're referring to are some of  
15 the online protocols and some of the anarchist cookbook-type  
16 methods where they'll first soak the beans, castor seeds, in  
17 lye to soften the woody seed coat, pop the pulp out, grind  
18 that material up, and then extract it with acetone to get rid  
19 of the oil.

20 The procedure is varied with the amounts and volumes.  
21 Some of them don't even have the volumes written down. So  
22 what somebody would use to do that, I would be guessing  
23 trying to figure out what they would use.

24 Q. Fair enough.

25 (Pause in the proceedings.)

1 MS. DUNN: That's all I have, Your Honor.

2 THE COURT: All right.

3 MS. DUNN: Thank you very much.

4 THE COURT: I find that the witness is qualified to  
5 offer opinions in the field in which he's been identified. I  
6 find that he has -- there is a valid basis for the opinions  
7 that he's offered, that they are consistent with the science,  
8 with the peer-reviewed information concerning these  
9 particular tests and the results, and therefore I find that  
10 the government has proved by a preponderance of the evidence  
11 the elements necessary for the witness to testify concerning  
12 the opinions that he's set out in his expert witness report.

13 Thank you, you may step down.

14 We'll take a brief recess and then we'll come back and  
15 deal with the issues on the motion to dismiss, as well as the  
16 issues for the pretrial hearing purposes.

17 Just in case, do you mind asking the doctor, if he's not  
18 catching a flight in 15 minutes, if he could hang around for  
19 a while in case we get into some matters where he might help  
20 us out a little later?

21 MR. BUCHANAN: Sure, I believe he has a 5:00 flight,  
22 it's around 5:00 or 6:00, we have some time.

23 THE COURT: Okay, great. Let's take a ten-minute recess  
24 and we'll come back.

25 (Recess, 11:40 a.m. to 11:50 a.m.)

1 THE COURT: Not that we will resolve the issue today,  
2 but a motion for leave to file a motion to dismiss has been  
3 filed by the defense. It's not yet ripe for the Court's  
4 consideration but I want to give the government an  
5 opportunity to respond to that, as it may help bring into  
6 focus what we have there and assist me in moving the case  
7 along.

8 So, Mr. Buchanan, if you would like to be heard on that,  
9 and this is not necessarily in lieu of being able to file a  
10 written response, but just if you could address it for me.

11 MR. BUCHANAN: I would appreciate it, constitutional  
12 issues, I appreciate being able to respond in writing.

13 I told the Court, I believe just as a quick review, and  
14 Ms. Dunn and I spoke about the motion briefly, I think it was  
15 last week, and I have done a quick review, I believe in the  
16 Second Circuit in the case that Dr. Barnaby talked about has  
17 addressed at least some of these constitutional issues with  
18 respect to the constitutionality of 175. I'm not certain of  
19 that as of now. I have not conducted extensive Eleventh  
20 Circuit research as to what the law is here. But I do know  
21 that I believe a challenges to 175 have occurred in a couple  
22 of jurisdictions across the country and I would appreciate an  
23 opportunity to respond in writing and sort of to formalize  
24 what I believe is the case, at least from the Second Circuit,  
25 and that is that 175 -- I do know they upheld a conviction

1 for 175 so that sort of tells me that they found it  
2 constitutional. But I'll review it more thoroughly and  
3 closely and see the specifics of that case and I'd like an  
4 opportunity to find similar cases, if they exist, in the  
5 Eleventh Circuit.

6 THE COURT: Let me ask you this. Much of what I see is  
7 the challenge here is whether the offense as charged in the  
8 indictment is found within 175b. That's kind of what I see  
9 is more than a constitutional challenge, but rather  
10 whether -- and I know Ms. Dunn was questioning this last  
11 witness about some of the federal regulations, 73.4 and 5 and  
12 6 in particular, which are found in subsection (a)(1).

13 As I understand the indictment, it's brought under (c),  
14 subsection (c), which doesn't refer to those sections of the  
15 Code of Federal Regulations but actually refer to other  
16 matters, but I don't know that ricin is found in those. And  
17 that's what I understand the challenge to be more about, that  
18 is, does this statute, this particular statute direct itself  
19 to accession of ricin.

20 Again, I'm not trying to put you on the spot to answer  
21 that question now but I think in terms of looking at that and  
22 preparing a written response, I think that's where the focus,  
23 from my perspective, is greatest. So I would encourage you  
24 to look at it from that perspective.

25 I think that obviously if the statute doesn't address

1 the conduct as alleged in the indictment it's defective and  
2 so to that extent I'm going to allow the motion to proceed  
3 but give you an opportunity to address the motion. And,  
4 quite honestly, I think our trial is set October 1, I know  
5 that's somewhat of a tight frame but I plan to keep it on the  
6 calendar. So I'm going ask you to expedite your response to  
7 the motion so I can rule on it promptly and give everyone  
8 notice as quickly as possible as to that.

9 So we'll move on from that. I will grant the motion of  
10 leave to file your motion and just ask the government to as  
11 promptly as possible file a response. And again, I think the  
12 focus of this is does this particular statute encompass the  
13 conduct as alleged in the indictment.

14 While I've got you here, Ms. Silas raised an issue about  
15 certain evidence. I don't know if it's your intent to offer  
16 that evidence at trial or not. If so, let me hear from you  
17 about that.

18 MR. BUCHANAN: It's not my intent to offer -- to make  
19 that the focus of this case, Your Honor. What I need to  
20 check is, I do remember that when Mr. Gibbs reported to the  
21 hospital there were items that prompted, that raised concern.  
22 One of those items was a knife; I don't believe the FBI  
23 recovered that knife. But I believe he may have been wearing  
24 a jacket, a vest that referenced that entity, that church of  
25 whatever it is, and so I believe that that was something that

1 was noted by hospital staff and might have factored into the  
2 urgency with which they reported to the police.

3 Now, I don't plan on offering someone to say he had this  
4 jacket on and now I went to the Internet and I found all  
5 these things related to this entity, but I don't want to  
6 preclude the witnesses from testifying about their  
7 observations of him, their interaction with him.

8 He spoke about having possibly spilled ricin to hospital  
9 staff. And then, as the Court is aware, he gave a  
10 post-arrest Mirandized statement that talked about ricin as  
11 well. And I can't remember whether or not in that statement  
12 he talks about that church but I can look and see whether or  
13 not that's the case.

14 But I don't anticipate making this case about any  
15 affiliations of defendant or about any potential plans for  
16 the ricin. There's no evidence of what he planned to do with  
17 it and I don't plan on speculating on that or eliciting any  
18 of that type of evidence from the witnesses.

19 THE COURT: Let's do this. I will grant the motion that  
20 we not go into that with your right to alert the Court if  
21 there are matters that you feel fall within this range of  
22 evidence that you feel you should be permitted to offer at  
23 trial, and that way we can then address those outside the  
24 presence of the jury and decide if, while it may have some  
25 probative value, if 403 causes it to go out because of its

1 prejudicial effect. I'm guessing that's the kind of balance  
2 that we'll have to strike. But I want to give you a chance  
3 to look at the evidence and make a decision. If there are  
4 matters you think you need to present your case-in-chief,  
5 alert me to those and when you have been able to evaluate  
6 your need for them I can then evaluate that probative value  
7 versus any prejudicial effect.

8 So at this point the directive would be not to introduce  
9 that but you have the right to raise it with the Court and  
10 we'll address it should there be items that fall within that  
11 category that you feel you need to present.

12 MR. BUCHANAN: Yes, Your Honor.

13 THE COURT: All right.

14 Yes, Ms. Silas?

15 MS. SILAS: Were you about to adjourn?

16 THE COURT: No. I was about to see what else you wanted  
17 to talk about.

18 MS. SILAS: Oh, okay. I was just trying to catch you.

19 While we're just talking about Mr. Barnaby, Ms. Dunn  
20 asked some questions about whether he was present for the  
21 testing, and the Court made a ruling that that only goes to  
22 the weight.

23 And we actually think otherwise and we think that  
24 there's a good confrontation clause challenge there. Now, I  
25 know that, you know, it oversimplifies it to just say



1     *Crawford, Crawford*, because there's difference between an  
2     expert context and not an expert context, but I'm not sure  
3     that if he did none of the testing and he actually -- like  
4     there's a difference between relying on other people's  
5     reports in the process of what you're testing and what you're  
6     doing and just not doing any of it.

7             So we would -- we are going to -- we think now that we  
8     ought to object to that and so maybe we would submit  
9     something to you. I don't know that you've given  
10    Mr. Buchanan a deadline on his response, nor am I suggesting  
11    that you should, although we do think that our argument  
12    prevails. You know, it's not on the list, the one that he  
13    cites, points to A, A points to the list, it's not on the  
14    list. And then --

15            THE COURT: On that, here's the burden you've got, to  
16    me, it seems, is we allow experts -- experts are allowed to  
17    rely on data generated by others without the necessity of  
18    bringing in every one of those persons who was engaged in the  
19    process.

20            Physicians, we don't require the x-ray tech to come in  
21    who actually shot the film of the chest so that the physician  
22    could rely on the film which showed that there was an  
23    abnormality. We don't require that.

24            And as I understood his testimony, and perhaps I didn't  
25    understand it, these were tests that generated reports, that,

1 you know, you get the spectrograph, you get the other  
2 matters, and there's a reading of that, which while the folks  
3 conducting the test may have done a reading, he had to also  
4 do a reading, he had to approve it, he had to look at the  
5 results.

6 That's my concern in terms of rolling in here, spending  
7 two days putting -- I mean, quite honestly, take this  
8 witness's testimony and multiple it times four, and if you  
9 want to do that to the jury, then we've got them off into the  
10 chemistry labs instead of deciding the guilt or innocence of  
11 this accused.

12 It's what do we allow the trial to turn into, is it  
13 going to be one on chemistry or is it going to be about the  
14 guilt or innocence of the accused. And that's my only  
15 concern, that while certainly you've got a right under  
16 *Crawford* to confront the evidence against you, and I will  
17 protect that right, I struggle a little bit in this context  
18 with that. And I understand, I think I understand your  
19 theory about the beans and all that, but I also look at the  
20 samples that were tested that served as the basis for his  
21 findings.

22 And I can understand wanting to plow deeper into that,  
23 which is a fact issue that could be addressed at trial, but I  
24 struggle a bit. I say that only to say that's the hurdle in  
25 my view you need to overcome, is the need to require that all

1 the lab techs who did the different tests would be required  
2 to travel here to present testimony, especially in the  
3 absence of some indication that there's some probative value  
4 there.

5 MS. SILAS: And I'm not sure I'm actually saying that.  
6 I don't think it would be all that great to have four or five  
7 different people. But it seems like more like someone did  
8 the test and then we're calling sort of the head of the lab,  
9 almost, and I'm not meaning that title, but just somebody  
10 else, some supervisor who really doesn't -- he really didn't  
11 describe really much involvement at all other than this is  
12 the way you do a test. Maybe it's just in the SOP, I don't  
13 even know, but he really didn't describe having been  
14 involved.

15 THE COURT: I'm not sure the SOP is going to help you.  
16 I think it is the directives on the testing that he said he  
17 would have decided these would be the tests to be run and he  
18 would have given directives of that.

19 My guess is when the government provides you the details  
20 on the actual underlying tests you will then see whether  
21 one -- and I don't know this, but I can guess that perhaps a  
22 different person does each of the tests and that's why I said  
23 four people. I don't know that one person takes a sample and  
24 runs it through all the test protocols or not. But I'm  
25 guessing that when you get this additional underlying

1 information you would have that made available to you.

2 You would also see what type of results you'd get from  
3 each of the assays and then the spectrograms and all the rest  
4 and that may give you a better position from which to analyze  
5 what you need by way of underlying participants.

6 MS. SILAS: Okay.

7 THE COURT: Let the government produce those matters to  
8 you, if you think you've got something there, bring it to me  
9 and we'll take a look at it.

10 MS. SILAS: Okay. And Mr. Buchanan has alerted me to a  
11 production that I may have overlooked, I'd like to let you  
12 know that.

13 If we're describing issues here, with respect to the  
14 instructions in this case, I'm not sure that there is one so  
15 I'll just be looking around for whether there's a pattern on  
16 this one.

17 THE COURT: And I don't have specific recollection of  
18 the witness -- I don't recall what statute the earlier ricin  
19 case was brought under.

20 MS. SILAS: It was under 175, this is 175b, which is not  
21 (b) subsection of 175 but 175b and then -- okay.

22 THE COURT: So that's probably not a good guide for you  
23 for purposes of the charge.

24 MS. DUNN: No, sir.

25 MS. SILAS: And then just flagging issues for the Court,

1 I just wanted the Court to know that I'm on trial supposedly  
2 with Judge Ross, the "supposedly" part being I don't know  
3 what's going to happen with the client decision process, but  
4 on September 24th. I expect that to be a very short trial,  
5 it's an illegal reentry case, but I want the Court to be  
6 aware of it in case you all are looking for me and off I'm  
7 doing that.

8 And then if the government did end up saying that  
9 something was necessary about this religion or, for instance,  
10 a picture of him with the jacket, then that would be  
11 something we would want to deal with in voir dire and so I  
12 just want to keep the Court -- I think it all needs to be  
13 kept out.

14 THE COURT: Yes, and for that reason, Mr. Buchanan, I  
15 would want you to let me know in advance of trial so that we  
16 would have those issues addressed so they could be addressed  
17 in opening statement if there were such matters that were  
18 going to be introduced at trial.

19 MR. BUCHANAN: Absolutely, Your Honor.

20 THE COURT: Any other matters from the government that  
21 you feel we need to address this morning in terms of  
22 preparation for trial?

23 MR. BUCHANAN: I don't believe so, Your Honor.

24 THE COURT: Thank you.

25 All right, let me get from you, by the Monday before

1 trial if I could have your voir dire questions that will  
2 allow me to do the questionnaire and get that copied to you  
3 before the end of the week. And, of course, requests to  
4 charge I would like to have by the Monday morning the trial  
5 starts.

6 And you folks, this is not your first rodeo with me, you  
7 know all the scoop.

8 Mr. Buchanan, I don't know if your colleagues have told  
9 you how we do it but I'm happy to go through the drill with  
10 you if you would like for me to in terms of our process.

11 MR. BUCHANAN: One question. Ms. Silas earlier  
12 mentioned the possibility of a bench trial. So I didn't know  
13 whether or not the defendant, what the thought process is or  
14 whether or not that would sort of obviate the need to have  
15 that discussion of how we would do that.

16 THE COURT: That's the first I heard of this.

17 MS. SILAS: Right. I thought about the possibility of  
18 recommending that. However, once we filed our motion to  
19 dismiss we kind of have been all focused on that. We really  
20 think there's a lot of merit there so we haven't pursued that  
21 further.

22 THE COURT: Let me just say this. If a decision were  
23 made for a bench trial by consent of all parties, I would  
24 want to know that at the earliest possible date because we  
25 have now summoned jurors for this case. And in Gainesville,

1 unlike Atlanta, when we summon jurors it is for a case, so  
2 this is the only reason we have them coming and we want to  
3 release them in ample time if we not going to need them.

4 MS. SILAS: We will let you know.

5 THE COURT: All right. Mr. Buchanan, are you  
6 comfortable with the process or do you want me to go through  
7 that?

8 MR. BUCHANAN: If the Court wouldn't mind.

9 THE COURT: Yes. As I mentioned, I need to get your  
10 voir dire questions from you because I will prepare a written  
11 questionnaire, I use one in every case. It is not sent to  
12 the jurors in advance but is rather given to them the morning  
13 they report.

14 When they're brought into the courtroom, each juror, I  
15 will do qualifying questions, and then each juror will stand  
16 and state where they live, what type work they do, if they  
17 have children, if they have a significant other where that  
18 person works as well, where adult children work, if they've  
19 ever been on the jury before, if so what type and whether  
20 they reached a verdict, whether they've been on a grand jury,  
21 whether they've had military service.

22 That little litany of questions can be found at the  
23 Court's website under, I think, trial instructions for  
24 lawyers under Judge Story's tab, you can find those.

25 After they do that, we go through and each juror gives

1 you that information and then each side has up to 30 minutes  
2 to ask questions but you must ask them from your list of  
3 proposed questions that you submitted to me in advance.

4 When you come in that morning I will have lined through  
5 a lot of your questions because if I'm doing it in qualifying  
6 or I put it in the written questionnaire, then I will strike  
7 it so you've got a handy list of really what's left on your  
8 list.

9 I think two times a lawyer has not gotten through all of  
10 his or her questions. So it sounds oppressive to say you get  
11 30 minutes, but the truth is the matter of things that are  
12 left to ask about can generally be handled in 30 minutes.

13 After you each do your 30 minutes of questions we then  
14 follow up on the written questionnaire. So during that 30  
15 minutes you should not touch on subjects that are in the  
16 written questionnaire.

17 The way I decide what to put on the written  
18 questionnaire are typically things that I think a juror may  
19 not want to talk about in open court where there may be other  
20 people in the courtroom that they know in the community and  
21 so forth. So for that reason we like to honor their privacy  
22 and so we follow up on those questions in private. We do it  
23 sequestered individual, we bring them in one at a time. I do  
24 those follow-up questions but with input from attorneys on  
25 what you want me to cover.



1           After we do the individual questions then we strike the  
2 jury. It is done by passing a list. The jury is not present  
3 in the courtroom when we do that. So I'm just saying that to  
4 you because if you're remembering the person wearing the red  
5 shirt is a person you don't want, you need to write down who  
6 that is on your list because the red shirt won't be in the  
7 room when you're striking the jury.

8           After striking the jury we proceed -- usually we get the  
9 jury struck by lunch. For that reason you don't have to have  
10 any witnesses here Monday morning but you should be ready to  
11 start your evidence Monday afternoon.

12           Thirty minutes per side for opening statements and we  
13 will begin each morning at 9:30, we try to recess as close to  
14 5:00 as possible. Of course, we take a lunch recess and  
15 typically a mid morning and mid afternoon recess.

16           Closing arguments, 30 minutes per side. I do not give  
17 the charge until after the arguments, and I read the charge  
18 to the jury but I also send out with the jury the complete  
19 charge in writing, a copy for each juror.

20           For that reason, the charge conference, which is held  
21 typically, obviously before the closing arguments, hopefully  
22 the day before the closing arguments, is an opportunity to --  
23 I will give you the night before your closing the draft of  
24 the charge so you can see how it looks and at the charge  
25 conference I'll hear from you as to any additions or

1 deletions you want me to make and even editing in terms of if  
2 you would like me to move something around or whatever.  
3 That's why I give it to you in written form, so you can see  
4 the way they're going to get it. So that's your chance to  
5 help edit the charge the jury is going to get. As I said, I  
6 try to get that to you the night before your closings so  
7 you've got it as you prepare your closing and have some sense  
8 of where we're headed.

9 During the trial you don't have to ask my permission to  
10 approach a witness.

11 That's all I can think of in terms of housekeeping. Any  
12 questions that you have?

13 MR. BUCHANAN: I don't think so, Your Honor.

14 THE COURT: All right. Thanks, folks, we will see  
15 you -- yes?

16 MS. DUNN: Not a question on what we just talked about,  
17 but you said the government's response to the motion to  
18 dismiss, you wanted it expedited but you didn't give a due  
19 date or me a reply date.

20 THE COURT: What time frame to you think you need,  
21 Mr. Buchanan, to get that? Realizing we're working against  
22 an October 1.

23 MR. BUCHANAN: Can I have a week?

24 THE COURT: Yes.

25 MR. BUCHANAN: Next Thursday?

1 THE COURT: Thursday is perfect, next Thursday. And if  
2 you could reply by the following Wednesday, maybe?

3 MS. DUNN: (Nods head.)

4 THE COURT: So next Thursday for the government,  
5 Wednesday for the reply. And we will make it a priority in  
6 chambers, we will get on it as quickly as we possibly can as  
7 soon as we get the reply.

8 All right, thanks, folks. Unless I hear something  
9 different from you, we'll plan to be moving forward on the  
10 1st, and obviously subject to the ruling on the motion as  
11 well. Thank you. We're adjourned.

12 (Proceedings concluded, 12:15 p.m.)

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C E R T I F I C A T E

UNITED STATES DISTRICT COURT:

NORTHERN DISTRICT OF GEORGIA:

I hereby certify that the foregoing pages, 1 through 83, are a true and correct copy of the proceedings in the case aforesaid.

This the 19th day of September, 2018.

*/s/ Amanda Lohnaas*

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Amanda Lohnaas, CCR-B-580, RMR, CRR  
Official Court Reporter  
United States District Court